HUNTERS POINT SHIPYARD
SVI DRAFT TECH MEMO SUMMARY FOR PARCELS B, D-1, G, & UC-2 & TPH DOCUMENTS UPDATE

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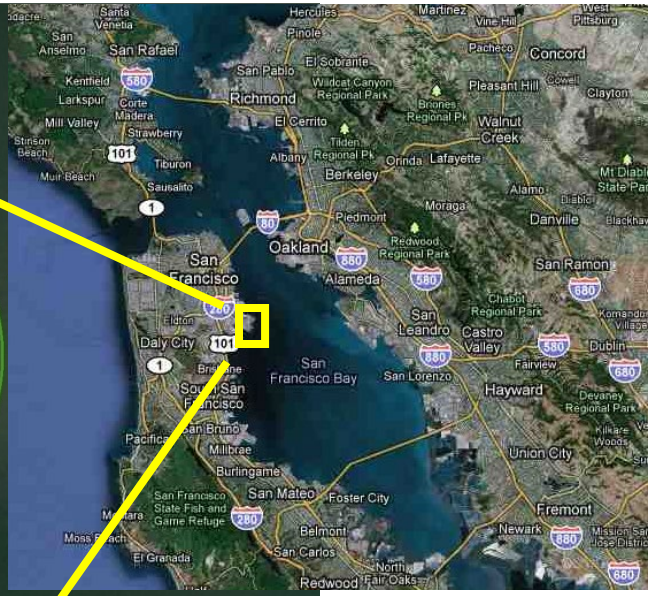
July 28, 2011 BCT Meeting

FACILITY LOCATION – SAN FRANCISCO CA



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SVI TECH MEMO (TM) OVERVIEW

- Document Schedule for SVI TM for Parcels B, D-1, G, & UC-2:
  - Draft out July 1, 2011
  - BCT comments due August 1, 2011
  - RTCs out August 15, 2011
  - Final out August 30, 2011
- Geotechnical Results
- Split Sample Validation
- Tier 1 PAH & Pesticide HHRA Results
- Tier 1 VOC HHRA
- Tier 2 VOC HHRA
- Conclusions of SVI Survey
- Recommendations

GEOTECHNICAL RESULTS

- Collected and Analyzed 29 Geotechnical Soil Samples
- Collected in 2-inch undisturbed Sleeves from 3-6 feet below ground surface (bgs)
- Analyzed for:
  - Particle Size Distribution
  - Moisture Content
  - Dry Bulk Density and Grain Density
  - Total Porosity
  - Total Organic Carbon
- Results:
  - 27 samples consisted of coarse-grained soils (gravels and sands with minor silts)
  - 2 samples consisted of fine-grained silts.
- Data was used to develop chemical and depth specific Attenuation Factors (AFs) for use in the Tier 2 HHRA modeling. The J&E model calculated AFs in the range of 10^{-3} to 10^{-5} which simulate greater attenuation than U.S. EPA default values.

SPLIT SAMPLE VALIDATION

Mobile TO-15 Method Validation

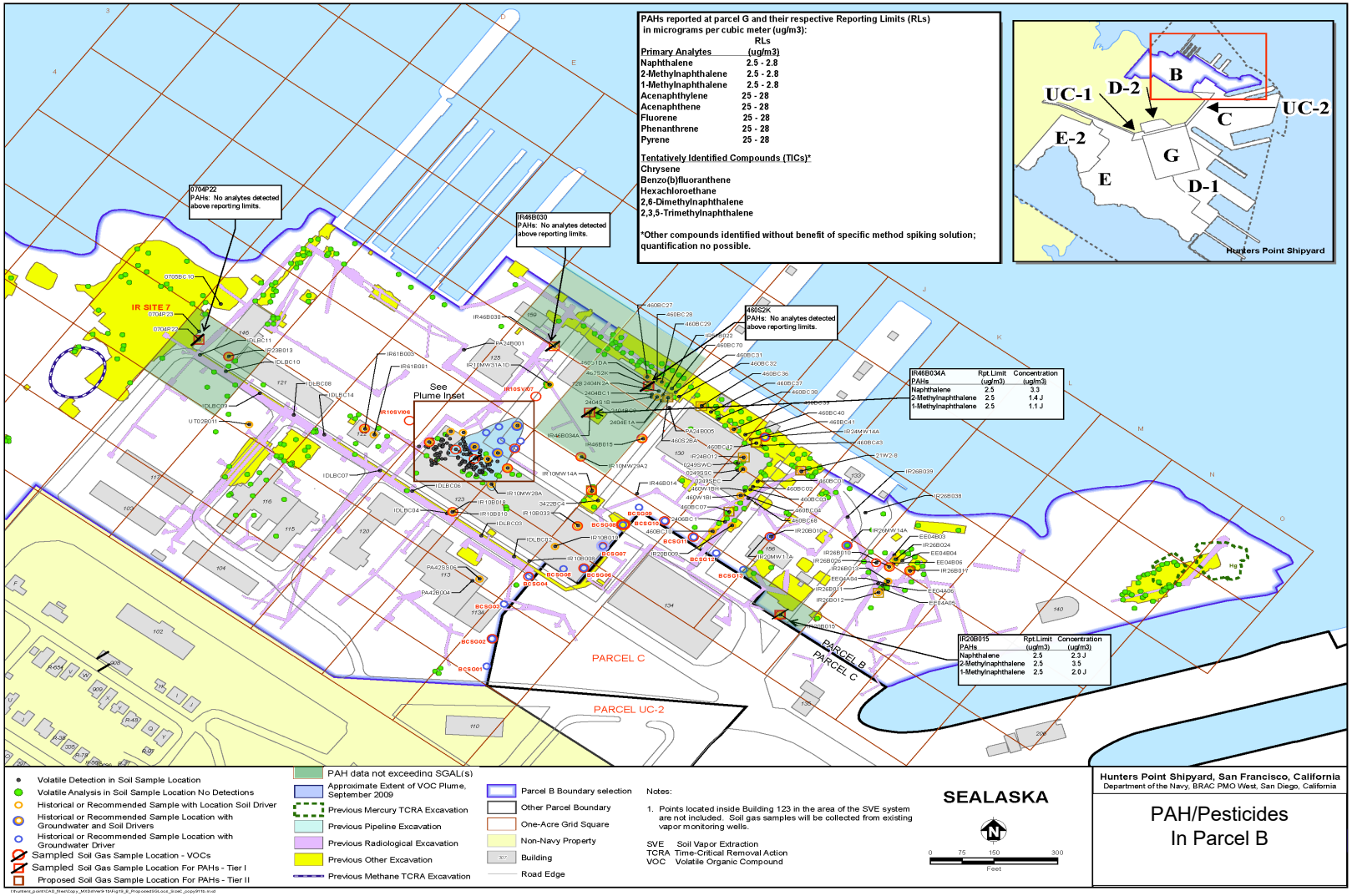
- The offsite, third-party, certified TO-15 sampling validation was performed using split samples to assess the performance of the mobile laboratory un-certified TO-15 analyses. A one-for-one comparison of samples that both contained detectable COC concentrations indicated that there was about **30% variance** between the mobile lab results and the fixed-base lab results.
- The mobile laboratory results are higher than the fixed base laboratory results. The conclusion is that mobile laboratory sampling method of using a glass syringe and analyzing in the mobile laboratory is as sensitive and accurate, if not more so, than the fixed base certified laboratory.

TIER 1 PAH & PESTICIDE HHRA RESULTS

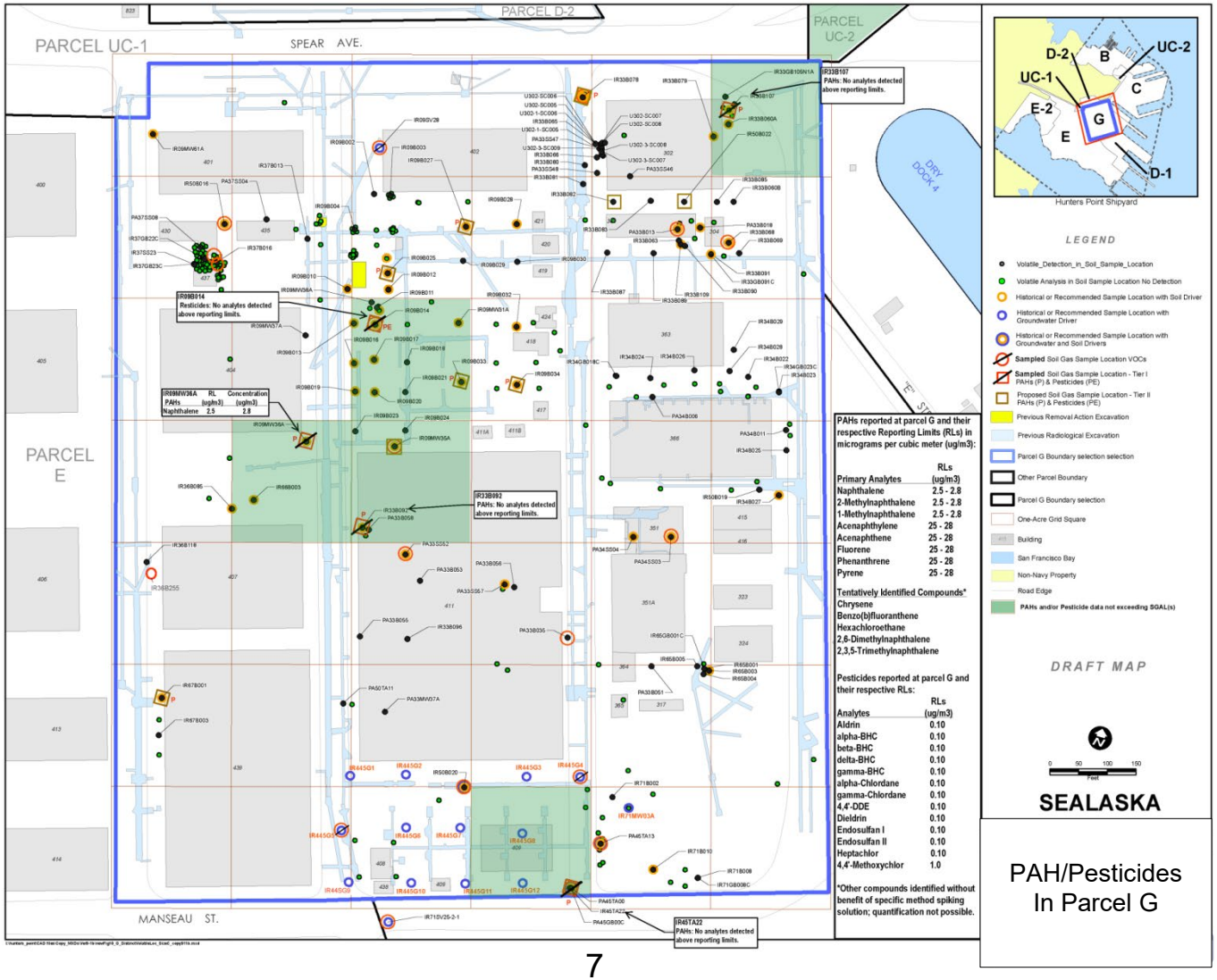
PAHs / Pesticides in Soil Gas

- No exceedances of either PAHs or Pesticides in Tier I sample locations.
- As a result, no Tier II locations sampled and no step-out locations selected for sampling.

TIER 1 PAH & PESTICIDE HHRA RESULTS IN PARCEL B



TIER 1 PAH & PESTICIDE HHRA RESULTS IN PARCEL G



PAH/Pesticides In Parcel G

TIER 1 VOC HHRA

- Tier 1 evaluation was calculated based on EPA AFs.

- Tier 1 screening-level and Tier 2 grid-specific HHRAs were prepared to estimate the potential indoor air health risks from VOCs detected in 150 soil vapor samples collected from 109 locations in 90 1-acre parcel grid blocks during the September 2010 survey in Parcels B, D-1, G, & UC-2.

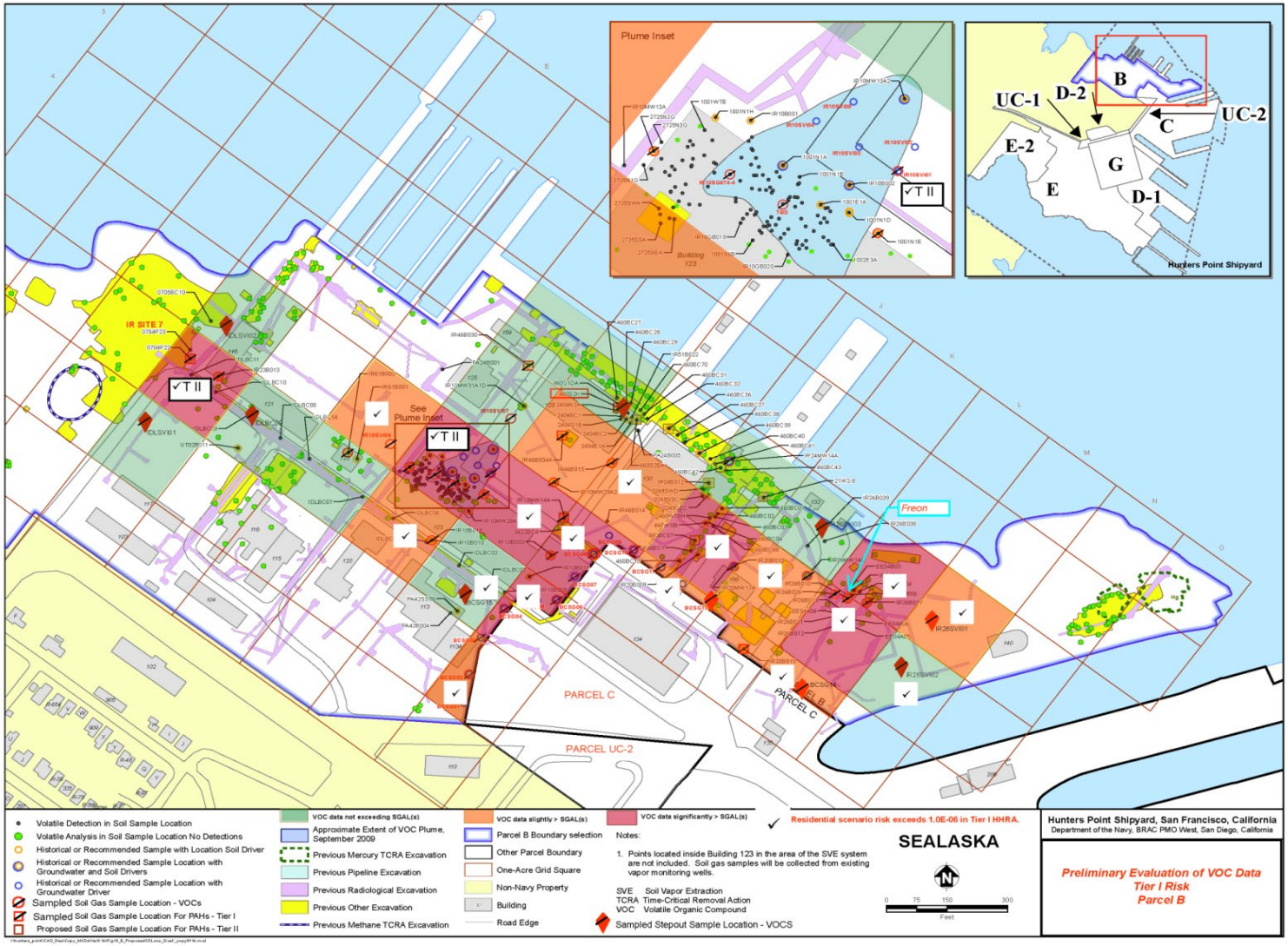
- 50 of the 109 locations did not exceed regulatory thresholds based on a Tier 1 risk screening analysis and do not need to be designated as ARICs. The remaining locations were further evaluated using a Tier 2 grid-specific evaluation.

TIER 2 VOC HHRA

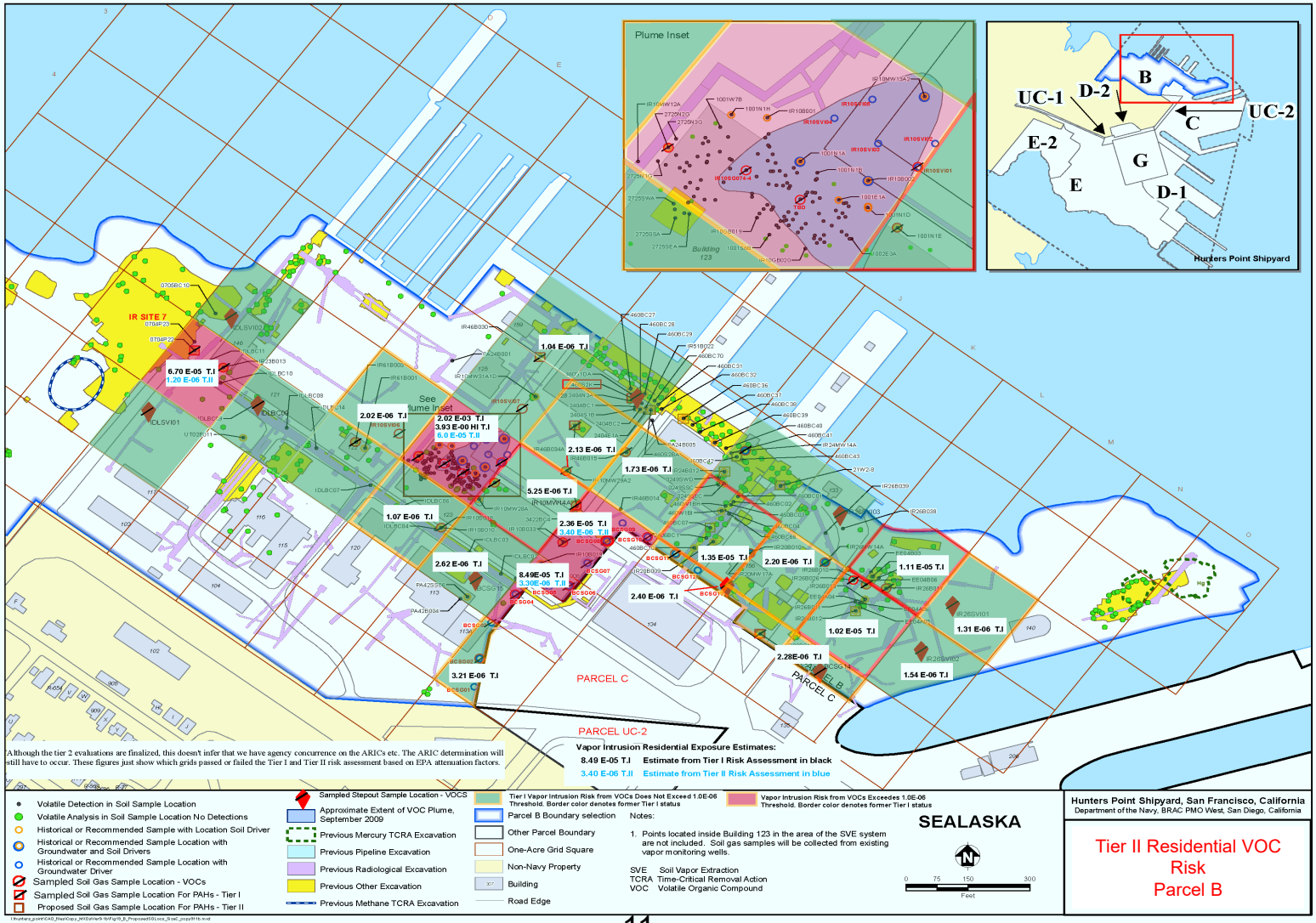
- Tier II VOC HHRA (for parcels B, G, D-1, & UC-2):
  - Site-specific soil geotechnical parameters collected from 29 locations and used to support Tier II calculations.
  - Tier II HHRA threshold based on residential use (1 X 10^{-6} risk).
  - Highest concentrations for any location with multiple analyses were used in the calculation. ½ detection limit used for "NA" results.

- FIGURES:
  - Red highlighted grids indicate exceedance of $1x10^{-6}$ and/or HI of 1.
  - Orange highlighted grids indicate slight exceedance of $1x10^{-6}$ and/or HI of 1.
  - Green highlighted grids indicate no exceedance of $1x10^{-6}$ and/or HI of 1.
  - Border color around Tier 2 grids indicates previous Tier 1 grid status.

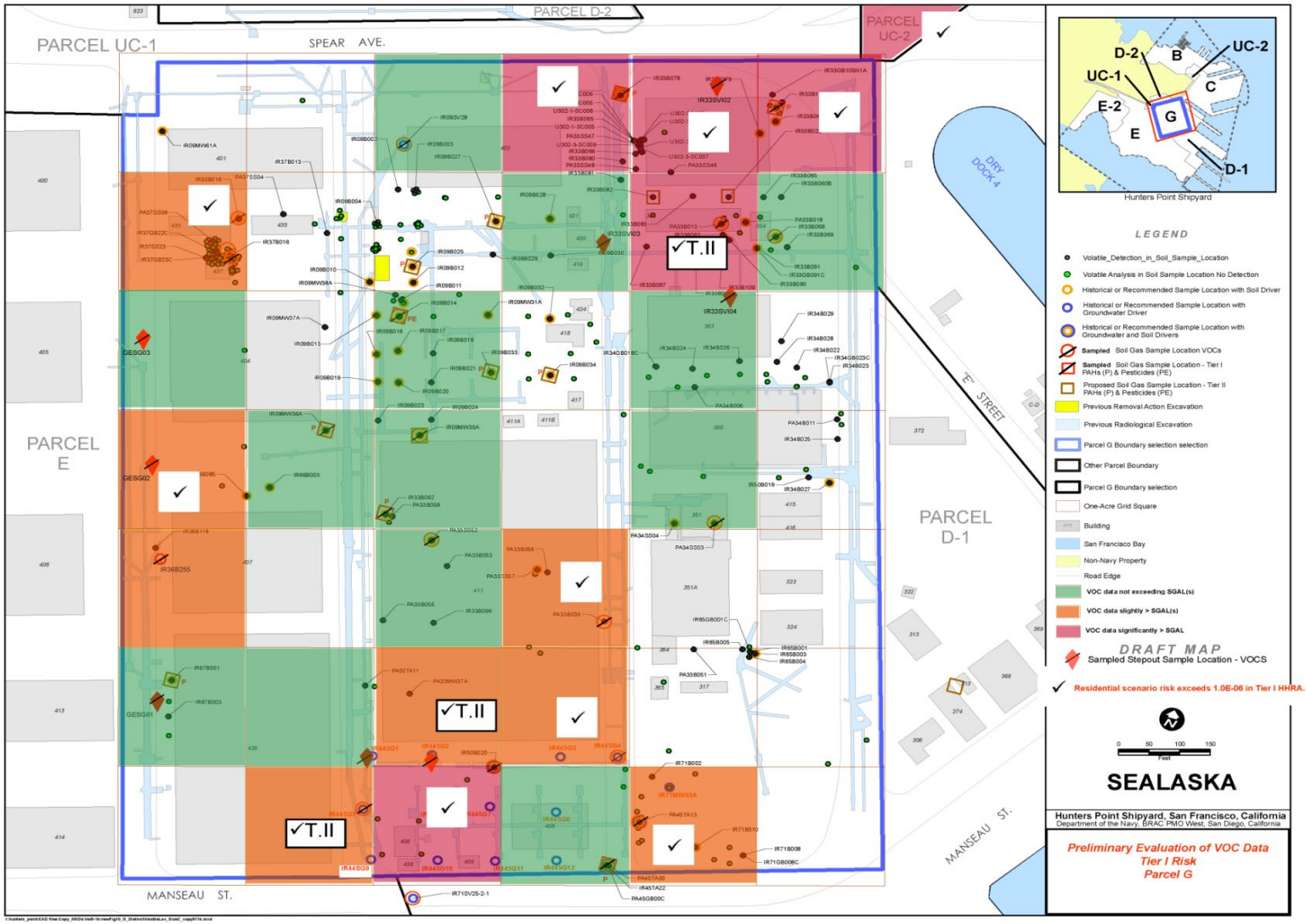
TIER 1 VOC HHRA RESULTS IN PARCEL B



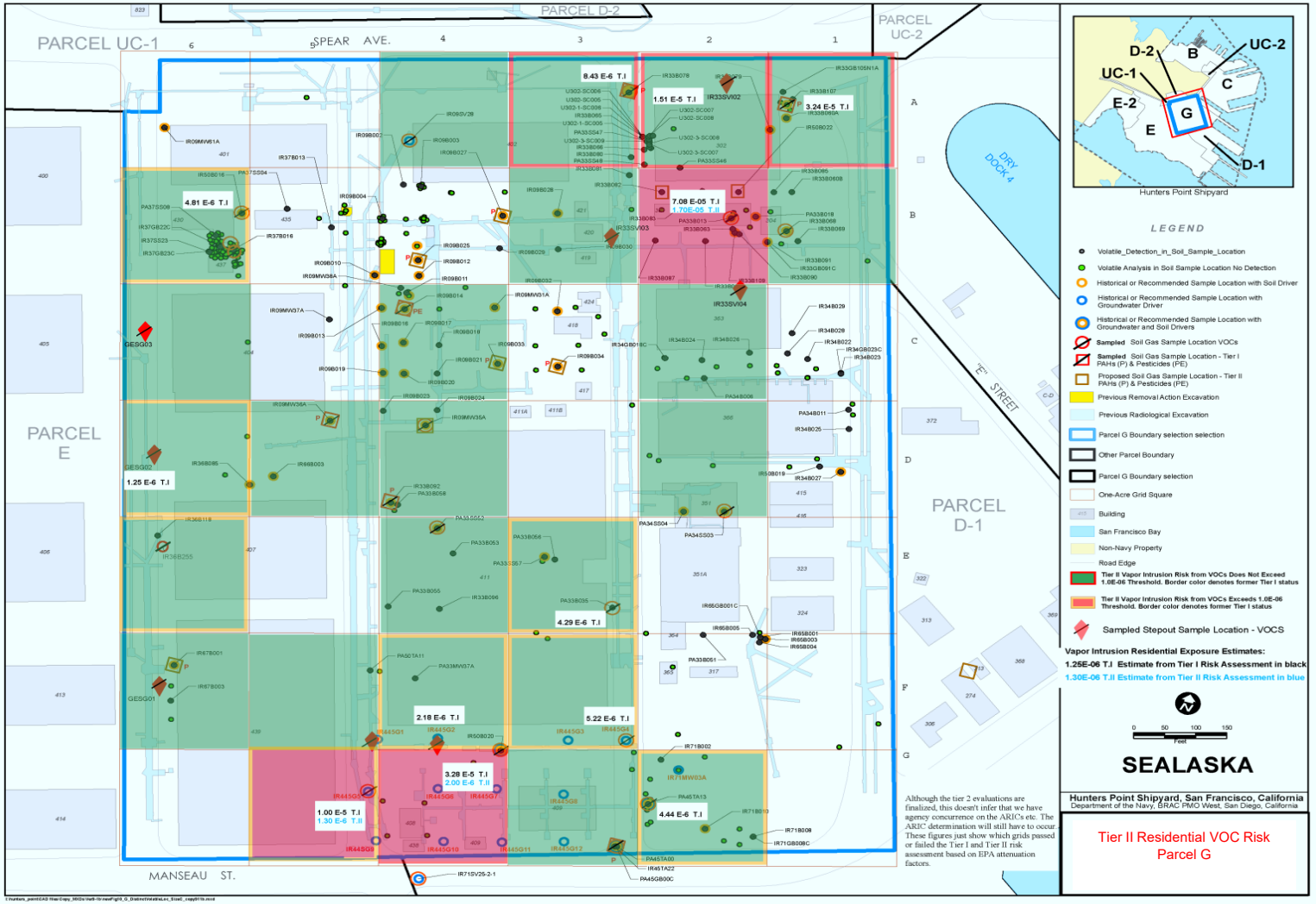
TIER 2 VOC HHRA RESULTS IN PARCEL B



TIER 1 VOC HHRA RESULTS IN PARCEL G



TIER 2 VOC HHRA RESULTS IN PARCEL G



CONCLUSIONS OF SVI SURVEY

- The Tier 2 HHRA estimated an average site wide AF of $9x10^{-4}$. This is the same value as the DTSC default for residential AF in modeling.

- Using the DTSC AF-based SGALs provides same results as the Tier II site-specific analysis as average Tier II AFs are identical to the defaults (0.0009 for residential, 0.0004 for commercial).

- By utilizing site specific geotechnical and soil gas data, realistic AFs were calculated rather than using U.S. EPA default values. Site-specific AFs are coincidently the same as the DTSC default AFs.

CONCLUSIONS OF SVI SURVEY (Continued)

- The primary COCs detected in soil gas samples exceeding SGALs, in order of frequency, are benzene (37 exceedances), chloroform (36), PCE (21), TCE (17), vinyl chloride (5), hexachloroethane (5), ethyl benzene (5), methylene chloride (4), and 1,1-DCA (4). Single occurrences of carbon tetrachloride and bromodichloromethane were also detected exceeding their respective SGALs.

- Unsampled grid blocks are not ARICS because they are without historical basis for soil gas sampling and adjacent sampled grid blocks were found to have no significant adverse human health risk.

CONCLUSIONS OF SVI SURVEY (Continued)

- 11 out of the 90 specific grid blocks exceeded the cancer risk threshold (1×10^{-6}) for residential land use.

- 9 of these 11 grid blocks have a marginal risk since they did not exceed a minimal risk standard of 5×10^{-6}, and may be included as grid blocks that do not require designation as ARICs.

- 2 of the 11 grid blocks should remain as residential ARICs. There are 3 sample locations (IR10SG47-10, IR10SG74-6, and PA33B013-0.5-OS) that substantially exceeded ($> 5\times10^{-6}$) the threshold under the residential scenario. These 3 sample locations are located within the 2 parcel grid blocks, grid block G5 in Parcel B and grid block B2 in Parcel G.

- Under the commercial/industrial scenario, the same three sampling locations above also substantially exceeded the threshold under the commercial/industrial scenario.

RECOMMENDATIONS

- The ARIC for a given parcel should be sized to include only those one-acre grid blocks indicated by the SVI investigation and HHRA as exceeding the cumulative cancer risk threshold for either commercial/industrial or residential use, as appropriate.

- No development restrictions should remain for Parcels B, D-1, G, and UC-2 grid blocks that did not have historical investigation basis for soil gas sampling (grid blocks left uncolored in the parcel figures). Likewise, the 79 parcel grid blocks that were specifically sampled and found to have volatiles in soil gas presenting no significant residential human health risk from VI and the inhalation pathway also should not have development restrictions.

RECOMMENDATIONS (Continued)

- The ARIC designation for each of the 9 grid blocks that are marginally at or slightly over the residential exposure scenario threshold cancer risk should be carefully evaluated. Often *default modeling values* are so conservative that an order-of magnitude decrease in the calculated cancer risk can be effected merely by better defining actual modeling parameters or site use rather than using default or approximated values. Secondly, *minor engineering design changes* can be planned that would eliminate the need for maintaining ARICs on marginally effected grid blocks (e.g. slightly increasing ventilation air exchange rates, door and window size or number, or installation of improved vapor barriers).

- Changes in ground level or excavation below current ground surface will change vapor migration characteristics and alter the predicted results of the HHRA for affected grid blocks. The effects on human health risk should be re-evaluated for any parcel grid in which excavation is planned or performed.

TPH DOCUMENTS UPDATE

- Parcel B TPH Closeout Report V1 & 2:
  - Final - August 2, 2011

    (to closeout 31 TPH sites; remaining 4 sites in CAA-21 Combined Site area to follow after 4th Quarter 2011 GW monitoring)

- Parcel B Post-Construction Summary Report (NAPL Excavation):
  - Draft - August 19, 2011
  - Final - October 31, 2011

- Parcel B 2nd Quarter 2011 Groundwater Monitoring Report:
  - Draft – October 2011
  - Final – December 2011

- Parcel B Tank 113A Action Memo:
  - Draft - August 19, 2011
  - Final - October 31, 2011

- Parcel C Workplan:
  - Draft - August 30, 2011
  - Final - October 31, 2011

HPNS Parcels D-1, D-2, & G
TPH Sites Water Board Closure Letters